What is claimed is:

1. A fluorescence observing apparatus comprising:

a light source for emitting excitation light;

excitation light irradiation means for irradiating said excitation light to a sample; and

fluorescence measurement means for measuring fluorescence emitted from said sample by the irradiation of said excitation light,

wherein a GaN-based semiconductor laser is employed as said light source.

2. The fluorescence observing apparatus as set forth in claim 1, wherein said excitation light emitted from said light source is continuous excitation light and said excitation light irradiation means irradiates said continuous excitation light to said sample.

3. The fluorescence observing apparatus as set forth in claim 1, wherein said excitation light emitted from said light source is pulsed excitation light and said excitation light irradiation means irradiates said pulsed excitation light to said sample.

4. The fluorescence observing apparatus as set forth in claim 1, wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

5. The fluorescence observing apparatus as set forth in claim 2, wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

6. The fluorescence observing apparatus as set forth in claim 3, wherein said GaN-based semiconductor laser is an InGaN-based semiconductor laser.

7. The fluorescence observing apparatus as set forth in claim 4, wherein an active layer of said semiconductor laser has InGaN/InGaN quantum cell structure.

8. The fluorescence observing apparatus as set forth in claim 3, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current.

9. The fluorescence observing apparatus as set forth in claim 4, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current.

10. The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is caused to output pulsed excitation light having a peak value greater than or equal to a continuous maximum output value of said semiconductor laser by a pulse-injecting current.

11. The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is driven so that an integrated value of pulse oscillation output values of said semiconductor laser per unit time becomes less than or equal to an integrated value of the continuous maximum output values of

said semiconductor laser per unit time.

12. The fluorescence observing apparatus as set forth in claim 1, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

13. The fluorescence observing apparatus as set forth in claim 2, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

14. The fluorescence observing apparatus as set forth in claim 3, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

15. The fluorescence observing apparatus as set forth in claim 4, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

16. The fluorescence observing apparatus as set forth in claim 7, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

17. The fluorescence observing apparatus as set forth in claim 8, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

18. The fluorescence observing apparatus as set forth

in claim 11, further comprising temperature-controlling means for controlling said semiconductor laser to a predetermined temperature and below.

19. The fluorescence observing apparatus as set forth in claim 1, wherein said semiconductor laser is a broad area type semiconductor laser.

20. The fluorescence observing apparatus as set forth in claim 2, wherein said semiconductor laser is a broad area type semiconductor laser.

21. The fluorescence observing apparatus as set forth in claim 3, wherein said semiconductor laser is a broad area type semiconductor laser.

22. The fluorescence observing apparatus as set forth in claim 4, wherein said semiconductor laser is a broad area type semiconductor laser.

23. The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is a broad area type semiconductor laser.

24. The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is a broad area type semiconductor laser.

25. The fluorescence observing apparatus as set forth in claim 11, wherein said semiconductor laser is a broad area type semiconductor laser.

26. The fluorescence observing apparatus as set forth in claim 12, wherein said semiconductor laser is a broad area

type semiconductor laser.

27. The fluorescence observing apparatus as set forth in claim 1, wherein said semiconductor laser is a surface emission type semiconductor laser.

28. The fluorescence observing apparatus as set forth in claim 2, wherein said semiconductor laser is a surface emission type semiconductor laser.

29. The fluorescence observing apparatus as set forth in claim 3, wherein said semiconductor laser is a surface emission type semiconductor laser.

30. The fluorescence observing apparatus as set forth in claim 4, wherein said semiconductor laser is a surface emission type semiconductor laser.

31. The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is a surface emission type semiconductor laser.

32. The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is a surface emission type semiconductor laser.

33. The fluorescence observing apparatus as set forth in claim 11, wherein said semiconductor laser is a surface emission type semiconductor laser.

34. The fluorescence observing apparatus as set forth in claim 12, wherein said semiconductor laser is a surface emission type semiconductor laser.

35. The fluorescence observing apparatus as set forth

in claim 1, wherein said semiconductor laser is an array type semiconductor laser.

36. The fluorescence observing apparatus as set forth in claim 2, wherein said semiconductor laser is an array type semiconductor laser.

37. The fluorescence observing apparatus as set forth in claim 3, wherein said semiconductor laser is an array type semiconductor laser.

38. The fluorescence observing apparatus as set forth in claim 4, wherein said semiconductor laser is an array type semiconductor laser.

39. The fluorescence observing apparatus as set forth in claim 7, wherein said semiconductor laser is an array type semiconductor laser.

40. The fluorescence observing apparatus as set forth in claim 8, wherein said semiconductor laser is an array type semiconductor laser.

41. The fluorescence observing apparatus as set forth in claim 11, wherein said semiconductor laser is an array type semiconductor laser.

42. The fluorescence observing apparatus as set forth in claim 12, wherein said semiconductor laser is an array type semiconductor laser.

43. The fluorescence observing apparatus as set forth in claim 19, wherein said semiconductor laser is an array type semiconductor laser.

44. The fluorescence observing apparatus as set forth in claim 27, wherein said semiconductor laser is an array type semiconductor laser.

45. The fluorescence observing apparatus as set forth in claim 3, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

46. The fluorescence observing apparatus as set forth in claim 4, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

47. The fluorescence observing apparatus as set forth in claim 7, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated

during a non-irradiation period of said visible light.

48. The fluorescence observing apparatus as set forth in claim 8, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

49. The fluorescence observing apparatus as set forth in claim 11, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

50. The fluorescence observing apparatus as set forth in claim 12, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

51. The fluorescence observing apparatus as set forth

in claim 19, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

52. The fluorescence observing apparatus as set forth in claim 27, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

53. The fluorescence observing apparatus as set forth in claim 35, further comprising

visible-light irradiation means for intermittently irradiating visible light to said sample; and

normal image forming means for forming a normal image of said sample illuminated with said visible light,

wherein said pulsed excitation light is irradiated during a non-irradiation period of said visible light.

54. The fluorescence observing apparatus as set forth in claim 45, wherein the irradiation of said excitation light is performed during the time that said normal image forming means

is in a vertical blanking period.

55. The fluorescence observing apparatus as set forth in claim 3, wherein said pulsed excitation light is formed from a plurality of pulses.

56. The fluorescence observing apparatus as set forth in claim 4, wherein said pulsed excitation light is formed from a plurality of pulses.

57. The fluorescence observing apparatus as set forth in claim 7, wherein said pulsed excitation light is formed from a plurality of pulses.

58. The fluorescence observing apparatus as set forth in claim 8, wherein said pulsed excitation light is formed from a plurality of pulses.

59. The fluorescence observing apparatus as set forth in claim 11, wherein said pulsed excitation light is formed from a plurality of pulses.

60. The fluorescence observing apparatus as set forth in claim 12, wherein said pulsed excitation light is formed from a plurality of pulses.

61. The fluorescence observing apparatus as set forth in claim 19, wherein said pulsed excitation light is formed from a plurality of pulses.

62. The fluorescence observing apparatus as set forth in claim 27, wherein said pulsed excitation light is formed from a plurality of pulses.

63. The fluorescence observing apparatus as set forth

in claim 35, wherein said pulsed excitation light is formed from a plurality of pulses.

64. The fluorescence observing apparatus as set forth in claim 45, wherein said pulsed excitation light is formed from a plurality of pulses.

65. The fluorescence observing apparatus as set forth in claim 54, wherein said pulsed excitation light is formed from a plurality of pulses.

66. The fluorescence observing apparatus as set forth in any of claims 1-65, incorporated into an endoscope, an operation microscope or a colposcope.